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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/031,397	01/18/2002	Qingquan Su	2002-0048A	2302

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EXAMINER

TRAN, HIEN THI

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 10/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/031,397

Applicant(s)

SU ET AL.

Examiner

Hien Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 July 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 1-7 and 27-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-40 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \*   c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election without traverse of Group II, claims 8-26 in Paper No. 8 is acknowledged.
2. Claims 1-7, 27-33 and newly added claims 34-40 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 8.

### *Drawings*

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "5c" (page 33, line 23); etc.. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: "80, 81" (Fig. 1); "45b" (Figs. 2, 4); "80b, 81b, 32a, 32b, 32c" (Fig. 3); etc.. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
5. The drawings are objected to because in Fig. 1, "45" should be changed to --45a-- (note page 16, line 23); etc.. A proposed drawing correction or corrected drawings are required in

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reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

6. The drawings contain similar problems as set forth above and should be amended in like manner.

7. The drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the drawings to comply with CFR 1.84(p)(5), e.g. they should include the reference sign(s) mentioned in the specification and vice versa.

***Specification***

8. The disclosure is objected to because of the following informalities:

On page 25, line 24 "46a" should be changed to --46-- for consistency (note page 16, line 22).

Appropriate correction is required.

9. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Rejections - 35 USC § 112***

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 12, 14-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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In claim 12, line 2 "such as" should be changed to --comprising-- for clarity. See claims 18, 21 likewise.

Claims 12, 14-17, 21, 23-26 are improper dependent claims as they fail to further limit the subject matter of the previous claims. Apparently, claims 14-17, 21, 23-26 merely recite process limitations and therefore are not structurally further limiting.

***Claim Rejections - 35 USC § 102***

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 8, 12, 14-17 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 2-86627.

JP 2-86627 discloses an apparatus comprising: an absorption tower, wherein the absorbent discharged from the absorption tower is brought into contact with air in a regeneration tower, to be regenerated and the regenerated absorbent is recycled into the absorption tower.

Since claims 12, 14-17 merely recite process limitations, they are not structurally further limiting. Accordingly, instant claims 8, 12, 14-17 structurally read on the apparatus of JP 2-86627.

***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

16. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2-86627 in view of CA 1,295,810.

The apparatus of JP 2-86627 is substantially the same as that of the instant claims, but fails to disclose whether more than one regenerator may be provided.

However, CA 1,295,810 discloses the conventionality of providing a system having an absorption tower, at least two absorbent regeneration towers, wherein the absorbent discharged from the final regenerator tower is recycled into the absorption tower by means of a circulation pump.

It would have been obvious to one having ordinary skill in the art to provide more than one regeneration tower as taught by CA 1,295,810 in the apparatus of JP 2-86627 for enhancing the regeneration efficiency thereof and since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

17. Claims 11, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2-86627 in view of Lagana et al (4,367,258).

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With respect to the provision of the gas-liquid separator, it is a well known and commonly used to provide a gas liquid separator for separating the gas entrained in the liquid discharged after treatment in a gas-liquid contact apparatus as evidenced by Lagana et al.

18. Claims 8-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lagana et al (4,367,258) in view of JP 2-86627.

Lagana et al discloses an apparatus comprising: first and second gas scrubbing sections 25, 28; first and second scrubbing liquid regenerators 30, 35 and circulating means.

The apparatus of Lagana et al is substantially the same as that of the instant claims, but fails to disclose whether the regenerating gas in both regenerators may have components different from the first and second gas scrubbing liquid.

However, Lagana et al discloses that the regenerating gas in one of the regenerators is different from the gas scrubbing liquid (col. 1, line 55-68).

JP 2-86627 discloses the conventionality of using a regenerating gas, e.g. air, different from the gas scrubbing liquid.

It would have been obvious to one having ordinary skill in the art to use a regenerating gas different from the gas scrubbing liquid in both regenerators of Lagana et al, as the use of such is conventional in the art as evidenced by Lagana et al and JP 2-86627 and therefore no cause for patentability here.

Since claims 12, 14-17, 21, 23-26 merely recite process limitations, they are not structurally further limiting. Accordingly, the apparatus of Lagana et al as modified by JP 2-86627 structurally meet the instant claims.

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Lagana et al discloses provision of a gas liquid separator disposed downstream of the regenerator. It would have been obvious to one having ordinary skill in the art to provide a gas liquid separator for separating the gas entrained in the liquid discharged from the absorption tower as well as from regenerators as evidenced by Lagana et al.

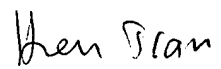
***Conclusion***

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hien Tran whose telephone number is 308-4253. The examiner can normally be reached on Tuesday-Friday from 7:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (703) 308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0661.

HT  
October 20, 2003

  
**Hien Tran**  
**Primary Examiner**  
**Art Unit 1764**